

ABSTRACT

1 A thin discontinuous layer of metal such as Au, Pt, or Au/Pd is
2 deposited on a Group III-V material surface. The surface is then etched in a
3 solution including HF and an oxidant for a preferably brief period, as little as a
4 couple seconds to one hour. A preferred oxidant is H_2O_2 . Morphology and light
5 emitting properties of porous Group III-V material can be selectively controlled as
6 a function of the type of metal deposited, doping type, doping level, metal
7 thickness, whether emission is collected on or off the metal coated areas and/or
8 etch time. Electrical assistance is unnecessary during the chemical etching of the
9 invention, which may be conducted in the presence or absence of illumination.